

VERIFICATION OF THE DEVELOPMENT PRIORITIES FOR MAŁOPOLSKIE VOIVODESHIP USING THE AHP METHOD

Małgorzata Lalicka

Jagiellonian University, Institute of Economics and Management
Department of Quantitative Methods

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Abstract

Establishing principles for regional development requires a detailed specification of the goals to be achieved, which would provide sustainable regional development according to expectations of its citizens or other entities operating in the region. Before the plans can be accepted for execution, they must be verified considering both external and internal conditions, regarding actual and predicted status. As for Polish conditions at the beginning of the 21st century, a specifically important challenge is considering the regional policy which, apart from being created regionally, is a result of various decision-making processes on national or EU level. These circumstances require the regional authorities to employ decision supporting instruments based on more or less standardized criteria. While the traditionally used SWOT analysis may constitute a starting point of standardization of the region-related data, in order to take ultimate decisions, and especially to prepare development variants as well as optimal solutions, more complex methods are required. In the current paper, AHP method was selected as the proper way to tackle multi-criteria decision-making problems, in parallel to the simple priority ranking method accepted by the authors of the Programme for Regional Development of the Małopolska Voivodeship for 2004–2006.

1. INTRODUCTION

A broad scope of interventions in the processes of regional development at the level of the European Committee, and specific member countries, constitutes a priority for the European Union. There are four European Union Structural Funds operating on the problem areas meeting the criteria of the Community, from which approximately half of the funds are concentrated within the European Regional Development Fund. Allocation of funds occurs according to the elementary conditions for regional development, elaborated within the European Union.

2. REGIONAL DEVELOPMENT IN POLAND – PERSPECTIVE OF EUROPEAN INTEGRATION

The Act on conditions for supporting the regional development, being the fulfillment of regulations of regional policy, effective in European Union, while specifying the rules and forms of supporting the regional development, also defines present and future terms of cooperation between the governmental and local authorities, as well as the non-governmental or private partners.

According to the definition contained in the Act of May 2000 (Dz. U. No. 48, pos. 550), supporting the regional development is understood as the “territorially focused course of actions, undertaken by the Council of Ministers and government authorities, aimed at achieving continuous socio-economic development and environmental protection, in cooperation with local government authorities as well as non-governmental or private partners”.

What seems significant for Poland and its particular regions is that programs in which the financial means controlled by organs of specific levels of the government administration will be complemented by assets from structural funds, coherence fund and community initiatives, constitute the base for the National Strategy of Regional Development as well as regional initiatives. In Poland, according to the accepted nomenclature in Declaration of the Council of Ministers from 13th of July 2000, the primary units responsible for executing the regional policy are voivodeship local governments.

Voivodeship local governments were established by the Act from 5th June, 1998. According to the regulations of the Art. 11, voivodeship local governments defines voivodeship development strategies, including in particular the goals related to conservation of Polish culture, promotion and development of the regional identity, stimulation of the economic activity and raising the level of competitiveness and innovativeness of the voivodeship economy while preserving the cultural and natural environment in the context of future generation requirements as well as shaping and preservation of the spatial order.

3. PROGRAMMING THE REGIONAL DEVELOPMENT

Programming the regional development constitutes a complex process, therefore both in the European Union countries as in Poland a necessity has arisen to include, besides the goals assigned by local and national communities, the priorities and goals defined by the European Union for Poland and its subordinate regions.

Administrative reform introduced in the 1998 has created a new level of the local government administration, which in Poland's case is voivodeship local government (Act from 24th July 1998 regarding introduction of a three-stage administrative zoning of the country). A main task of the newly created structure is coordination of the regional development using both domestic and international sources. Currently, a funda-

mental task for the Polish administration is creation of efficient mechanisms enabling preparation of programmes, understood as process, aimed at introducing long-term changes in the development of a specific region.

The stages for construction of such a programme are as follows (Kudłacz, 1999):

- diagnosis of the current situation;
- analysis of development capabilities;
- definition of development requirements of the citizens;
- specification of development goals and their structural hierarchy;
- specification of conditions of the future development, implied by hypothetical acceptance of particular priorities to be executed as well as selection of the most appropriate variant in terms of cost-effectiveness and benefits related;
- formulation of the document specifying the programme, including prerequisites for its implementation;
- implementation of such document or set of documents;
- evaluation and control of the assumption accepted for implementation.

4. THE PROGRAMME OF REGIONAL DEVELOPMENT OF THE MAŁOPOLSKIE VOIVODESHIP FOR 2004–2006

The Strategy of Development of the Voivodeship (2000) is a key document containing the task list for 2000–2006, its approval was preceded by a process of social consultations. The strategy formed the basis for the Voivodeship Operational Programme, prepared in December, 2000 covering the period of 2001–2002, and subsequently the Application for Support and the first Voivodeship contract for the years 2001–2002. Currently, based on the Strategy of Development and the National Development Plan (Act no. 105 of the Council of Ministers from 28th December 2000), the Operational Programme for Małopolska has been prepared defining ways of utilization of structural funds granted by the European Union for the period of 2004–2006.

A fundamental stage, crucial for the overall shape of the programme is selection of the strategic and intermediate goals appointed for execution. The main goal imposes the character of an execution strategy to be approved. Its selection is a derivative of prerequisites accepted by specific decision-making levels of public administration, both domestic and foreign. In case of Poland, the strategic goal is included in the National Development Plan, constituting the product of a regional policy of the Polish government and regional policy of the European Union. The goal, in its most synthetic form is specified in the Act regarding the support of the regional development, stating that the support of the regional development is executed based on the national strategy of regional development as well as the initiative of the voivodeship local government, according to the sustainable development principle. The latter formulation constitutes the base of the regional policy of the European Union.

Having specified the strategic goal within the above mentioned institutional framework, the intermediate tasks need to be defined. They are to identify projects planned for execution in order to reach the superior goal. The intermediate goals are reflected in

the operational goals allowing disassembly of the main goal into particular tasks to be completed.

The specified goals and tasks are then subject to hierarchical categorisation due to formerly specified requirement to consider in parallel the valid hierarchical systems both on the national and European Union level.

A subsequent step of creation of the development programme is constructing the alternative development scenarios. The process of selecting the scenario requires involvement of a widest possible community, to which a result of the specific strategy would pertain. Defined development scenarios are subsequently subject to evaluation. Due to necessity of objective selection to be carried out among the alternative variants, constituting product of opinion of specific decision-makers, the most optimal solution would be to subject them to evaluation done by independent experts.

In order to select the most appropriate scenario, methods allowing analytical comparison of resulting qualitative features are utilized more and more often.

An adequate method for evaluation and selection of considered development scenarios is the analytical hierarchical process (AHP). Following is presented a method aimed at identification of priorities for the programme of regional development of Małopolskie Voivodeship, such as it was used in the past years. Later in this paper we will try to identify the way and prove appropriateness of the AHP method implementation.

5. ANALYTICAL METHODS

5.1. SWOT ANALYSIS

Decision making process pertaining to regional development must be based on the synthetic material, which would allow presentation of results in systematic way both analyses of detailed data regarding the functioning of the local government community (Hausner, 1999), and general background conditions, reflecting the economic situation, mood of the public, as well as political configuration. Such synthetic approach is based on matching four parameters describing successes, weaknesses, opportunities and threats related to development. SWOT Analysis for the Małopolskie Voivodeship was prepared many times, however, changing internal and external conditions suggest repeated execution of such analysis for subsequent strategic plans or operational programmes.

Having summarized the ranks, assigned by users to certain elements of the SWOT analysis the following feature layout was obtained, presumed as most representative for description of the Małopolskie Voivodeship:

Table 7.1: Strengths and Weaknesses of the Małopolskie Voivodeship

No	Strengths	Rank sum.	Weaknesses	Rank sum.
1	rich cultural and scientific resources	100	weak accessibility of the tourism related areas	94
2	high potential of the academic education facilities	91	low quality of the transportation network	86
3	highly developed metropolitan features of Krakow	81	large, hidden agricultural unemployment	85
4	strong regional and cultural identity	75	unresolved waste management	85
5	significant percentage of academic students	73	low transition of scientific achievements to the industry	85
6	entrepreneurship and activity of małopolska citizens	70	low level of municipal waste recycling	84
7	broad cultural offering	69	slow pace of change in rural areas	83
8	high percentage of highly-educated people	66	agricultural fragmentation	79
9	varied transportation structure	65	weak business environment,	78
10	well developed hotel base for tourism	64	lacks in tourism related infrastructure	77
11	convenient connection with Śląsk region	63	low level of income of regional authorities	77
12	beneficial demographic structure	59	large disproportions of economic development	76
13	availability of high-tech industries	57	dispersed settlements	76
14	differentiated profile of regional economy	57	weak preparation of businesses for competition with european union companies	73
15	high factor of real estate investments	53	weak municipal infrastructure,	71
16	relatively low unemployment	46	insufficient number of medium sized enterprises	69
17	large number of NGOs	45	low availability of areas intended for economic activity	62
18	social peace	10	excessive pollution of surface water	60
			large disproportions in economic activity of citizens	8
			conservatism	8

Source: official web page of the Marshall Office of the Małopolskie Voivodeship, www.malopolskie.pl

Table 7.2: Opportunities and Threats for the Małopolskie Voivodeship

No	Opportunities	Rank sum.	Threats	Rank sum.
1	decentralized public finances; strengthened regional government	95	public finance crisis	101
2	convenient international transportation accessibility	93	legal and institutional barriers for creation and functioning of the MSE	91
3	tourism development	93	low capability of utilization of the European Union funds	89

No	Opportunities	Rank sum.	Threats	Rank sum.
4	increase of importance of "leisure-related businesses"	88	incompatibility to European Union quality standards	80
5	development of information society	81	increased percentage of continuously unemployed	76
6	involvement of the scientific potential in development of the advanced technologies	81	unemployment growth	75
7	development of the knowledge-related economy	79	economic recession	72
8	government-induced programmes of highway development and regional airports	78	outflow of highly qualified specialists	69
9	dynamic development of educational facilities, including education for adults	76	economic stratification of the community	69
10	development of the transportation channel leading to the Ukrainian border	76	growing fiscal burden for enterprises	67
11	growth of incoming pre-accession and structural European Union funds	76	growth of manpower resources with simultaneously increasing deficit of job posts	57
12	acceleration of restructuring processes in rural areas	63	"breakdown" of programme for building the highway network in Poland	56
13	growth of the economic and social cooperation with european union regions	60	weak awareness of own requirements conditioning the growth of MSE	53
14	high reserve potential in the service sector, especially in rural areas	58	deceleration of the civilization development in the rural areas	51
15	demographic "baby boom" entering the job market	50	restructuring the agricultural sector	50
			growing competitiveness of other regions	37
			increased flooding risk	37

Source: official web page of the Marshall Office of the Małopolskie Voivodeship, www.malopolskie.pl

5.2. THE RANKING METHOD

Priority segmentation for the Programme of Supporting Regional Development of the Małopolskie Voivodeship (PWRRWM) was obtained through polling, in which the deputies of the Voivodeship Seimik took part (Operational Programme of the Regional Development of the Małopolskie Voivodeship for 2004–2006). Due to direct operational goal of the PWRRWM, namely obtaining the co-financing for voivodeship tasks from the Support Programme for 2004, necessity of analysing the priorities of the governmental Support Programme was decided, in terms of meeting the main goals of Strategy of Development of the Małopolskie Voivodeship. The above mentioned method was based on assigning the specific actions of the Support Programme the ranks from 0–10 due to level of influence at execution of the main goals of the strategy. The differentiation of ranks between specific main goals of the Strategy was deliberately disregarded. This was due to the fact that the main goals are not differentiated in the Strategy in terms of their importance. **Table 7.3** presents the results of the survey, ordering the priorities in the simple hierarchical list.

Table 7.3: The Results of the Survey Specifying the Importance of Activities within the Programme of Supporting Regional Development of the Małopolskie Voivodeship

Strategy of Development of the Małopolskie Voivodeship (2000–2006)							
Priorities of the programmes relevant for the Małopolskie Voivodeship development	1	2	3	4	5	Rank sum.	Order
Support programme for 2004							
Priority 1: Development and upgrade of the technical infrastructure elements as well as the education system and social care in the region							
– raising the technological standards of roads and local public transportation,	49	48	84	88	72	341	1
– reinforcing the environmental protection system,	33	88	43	13	39	216	6
– upgrade and development of the health care system,	54	28	40	13	55	190	7
– restructuring and upgrade of the educational, tourist and sport frameworks,	81	34	62	24	67	268	4
– upgrade and rising the standards of the healthcare infrastructure;	49	26	22	10	49	156	8
Priority 2: Stimulation of the local social and economic initiatives, aimed at development of life standards of the local community							
– creating regional credit, loan and safety funds,	68	46	81	54	63	312	2
– regional promotion as well as the local societies using the local cultural heritage resources,	58	72	60	26	63	279	3
– supporting projects related to promotion, education and ecology, executed through NGOs and social organisation.	72	59	43	27	63	264	5

Source: official web page of the Marshall Office of the Małopolskie Voivodeship, www.malopolskie.pl

Priority segmentation of activities within PWRRWM implied key role of raising the technological standards of roads and local public transportation (341 points). The following rank was achieved by creation of regional credit, loan and safety funds (312 points). The third important priority occurred to be promotion of the region and its local societies using the local cultural heritage resources (279 points), while the specific actions (restructuring and upgrade of the educational, tourist and sport frameworks having 268 points as well as supporting project related to promotions, education and ecology executed through NGOs and social organizations, having obtained 264 points) did not significantly differed in ranks, as far as the opinion of deputies was concerned. The lowest rank was assigned to upgrade and rising the standards of the healthcare infrastructure, with 156.

5.3. THE AHP METHOD

Specification and implementation of the development strategy for regional authorities is a complex process, involving a number of decision-makers and entities related to the plan under consideration.

In the course of the current paper, the process of decision making concerning the inclusion or exclusion of specific elements of the strategy will be presented, as well as considerations related to assignment of their priorities.

The first step is assignment of the main goal. Remaining with the example of the voivodeship local authority, we deal here with the main goal induced by an Act. The defined scope of actions as well as voivodeship tasks constitutes the starting point for specification and priority assignment.

The AHP is designed to solve multi-criteria decision-making problems, where the decision systems takes on a form of the hierarchy. Creation of such hierarchy is aimed to lead to specific tasks through definition of the main goal, intermediate goals, tasks and scenarios (Saaty, 1990). The main goal is situated at the top of the hierarchy and consists of several intermediate goals as its detailed specification. Another decision-making level is formed by tasks, execution of whose is required to reach the intermediate goals. At each level of the hierarchy, importance of decision-related elements is compared, which in turn are analysed according to one of the scales suggested by Saaty. For the current paper, a nine-level scale was appointed. The last element of the analysis, namely scenario selection, will be disregarded, as our goal is the comparison of the analysis carried by the Government of the Małopolskie Voivodeship. The summary of the analysis is presented in the **Table 7.3**, which does not exceed the linear ordering of priorities and goals.

Assuming for starting point the results of survey, carried out by the Voivodeship Government, the data were repeatedly analysed using the AHP method. The priorities and goals are presented in **Figure 7.1**.

The first step of the analytical hierarchy process was setting up the specified goals at each of three levels. A hierarchy of factors was obtained, leading to meeting the ultimate goal. The essence of the process was calculation of priority values for both local and global priorities and each decision-making element, through comparing their significance in pairs at each level of the hierarchy, using the nine-level Saaty preference scale (Adamus, 2002). The weighs were assigned based on the opinions of poll participants, in this case – the Voivodeship deputies.

Comparison of the superior goals of the 2nd level, called priorities in the polling, yield the result expressing a certain advantage of the first goal, which indicates more significance of the technical infrastructure in comparison to supporting the local economic and social initiatives. At the 3rd level, significance comparison was performed with respect to the superior goals. Having calculated the normalized paired comparison eigenvectors, a relative significance of the intermediate goals at the 3rd hierarchy level (local priorities) was calculated. The local priorities define share of a given decision-making element in reaching the goal at the directly upper level. The global priorities of a given level represent in turn the share of each element in reaching the main goal. **Table 7.4** and **Table 7.5** present the results of calculations of local priorities, thus illustrating the relative significance of the intermediate goals for reaching the appropriate superior goal (priority). **Table 7.6** contains the overview of the global priorities, featuring comparison of weighs of the superior goals with respect to the main goal. An advantage of the AHP analysis over the ranking method is the capability to compare the relative weighs of the lower rank between each other both with respect to the directly superior goal and the main goal.

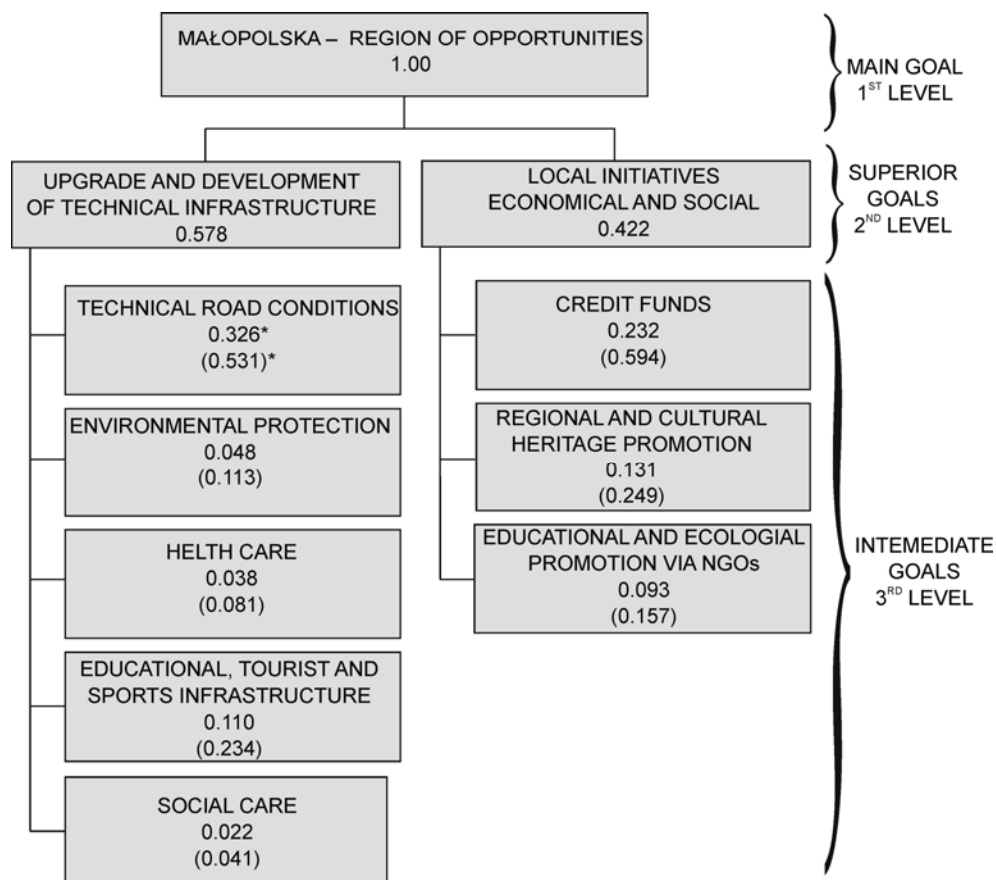


Figure 7.1: Hierarchy of Elements Considered for Definition of the Strategy of Regional Development

Source: own, based on the Information on the results of workshop carried out as part of preparations for the PWRRWM for 2004–2006

Table 7.4: Priority1: Development and Upgrade of the Technical Infrastructure Elements as well as the Education System and Social Care in the Region

	Technical road condition	Environmental protection	Healthcare	Social care	Educational and tourism and infrastructure	a_{ij} $j = 1$	a_{ij} $j = 1$	Local priority
Technical road condition	1	5	5	4	9	900.00	3.90	0.531
Environmental protection	0.2	1	2	0.33	3	0.40	0.83	0.113
Healthcare	0.2	0.5	1	0.25	3	0.08	0.60	0.081
Social care	0.25	3	4	1	5	15.00	1.72	0.234
Educational and tourism infrastructure	0.11	0.33	0.33	0.20	1	0.0025	0.30	0.041
					Σ		7.35	1.000

Table 7.5: Priority 2: Stimulation of the Local Social and Economic Initiatives, Aimed at Development of Life Standards of the Local Community

	Credit funds	Region and culture promotion	Education and ecology promotion	a_{ij} $j = 1$	a_{ij} $j = 1$	Local priority
Credit funds	1	3	3	9	2.08	0.594
Region and culture promotion	0.33	1	2	0.67	0.87	0.249
Education and ecology promotion	0.33	0.50	1.00	0.17	0.55	0.157
Σ					3.50	1.000

Table 7.6: Global Priorities

	Technical road condition	Environmental protection	Healthcare	Social care	Educational and tourism infrastructure	Credit funds	Region and culture promotion	Education and ecology promotion	a_{ij} $j = 1$	a_{ij} $j = 1$	Global priority
Technical road condition	1.00	5.00	5.00	4.00	9.00	2.00	4.00	4.00	28 800	3.61	0.326
Environmental protection	0.20	1.00	2.00	0.33	3.00	0.25	0.25	0.25	0.01	0.53	0.048
Healthcare	0.20	0.50	1.00	0.25	3.00	0.20	0.25	0.25	0.00	0.42	0.038
Social care	0.25	3.00	4.00	1.00	5.00	0.33	0.50	2.00	5	1.22	0.110
Educational and tourism infrastructure	0.11	0.33	0.33	0.20	1.00	0.14	0.20	0.20	0.00001	0.25	0.022
Credit funds	0.50	4.00	5.00	3.00	7.00	1.00	3.00	3.00	1890	2.57	0.232
Region and culture promotion	0.25	3.00	4.00	2.00	5.00	0.33	1.00	2.00	20	1.45	0.131
Education and ecology promotion	0.25	3.00	4.00	0.50	5.00	0.33	0.50	1.00	1.25	1.03	0.093
Σ										11.079	1.000

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